Fruit Piercing Moth
(*Phyllodes imperialis*)

Butterfly & Other Invertebrates Club Inc. Newsletter

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PLANNING AND ORGANIZATION MEETINGS

A quarterly meeting is scheduled in order to plan club activities and the newsletter. See BOIC Programme.

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AIMS OF ORGANIZATION

- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organize excursions around the theme of invertebrates e.g. butterflies, fireflies, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas.

NEWSLETTER DEADLINES

If you want to submit an item for publication the following deadlines apply:
March issue – February 21st
June issue – May 21st
September issue – August 21st
December issue – November 21st

COVER DRAWING

Phyllodes imperialis by Lois Hughes

PRESIDENT'S POSTING

With many thanks to Jill Barrett and Daphne Bowden, the Club now has our own website. It can be found on the State Library of Queensland's server. Its address is http://cwpp.slq.qld.gov.au/butterfly and it's proving very popular, with the counter rapidly rising, and being given an environmental website award within days of being on the net! If you get a chance, go and visit it soon and let all your friends know about it. Our plans are to update it after each newsletter, that is, once per quarter. Thanks also goes to Wendy Toussis for the original music on the website. Further thanks goes to Don Herbison-Evans for having hosted a Club page on his Australian Caterpillar's website.

Last newsletter we invited people to be in a membership directory and to offer their gardens for a visit by club members. We have enough garden offers for a number of afternoon visits, thanks to those who responded. Thanks also to those who have agreed to be in the membership directory. We are giving everyone a second opportunity to be in this directory. It will be produced in August, so, if you missed out previously, please return your response by 31st July.

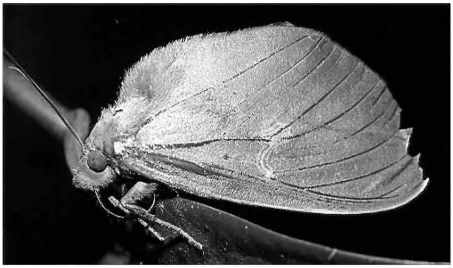
Helen Schwencke

IN THIS ISSUE

Planning and Organization Meetings......2
Contact Address......2
Aims of Organization......2
Newsletter Deadlines......2
Cover Drawing......2
President's Posting......3
In this Issue......3
Creature Feature......4
Plant Profile......5
Reports......6
Excursion Reports......13
Articles of Interest......17
Posters......21
World Wide Web Sites to Watch......21
Back Issues......21
Ads and Exchanges......22
Other Group's Activities......22
Butterfly and Other Invertebrates Club Programme......23

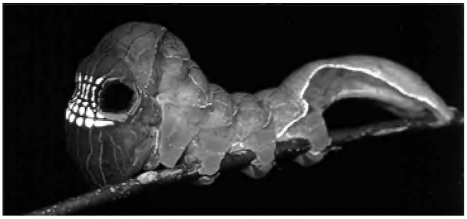
Imperial Fruit Piercing Moth (*Phyllodes imperialis*)

Members who came to the first of the club's winter program series of invertebrate "picture shows" were treated to colour slides of this magnificent insect. Common's "Moths of Australia" gives the distribution and habitat as rainforest of north-eastern Queensland to northern NSW and overseas in PNG, the Solomons, Vanuatu with another subspecies in New Caledonia.


Adult looking like a dead leaf – Photo by John Moss

The expanded forewing size of the adult varies from 130 to 170 mm, and as indicated by our superb illustration (by Lois Hughes), the forewings are chocolate brown and leaf-shaped and the hindwings have a large pinkish-red central area. When at rest the forewings cover the hindwings in "steep, peaked roof" shape (see adjacent illustration) and it disappears from view – any potential predator seeing what appears only to be a dead leaf – a good example of leaf crypsis.

Just as spectacular is the larva, of which the final instar is about 120 mm long. If molested, it bends its head downwards beneath the raised front portion of its body, stretching the skin on its dorsum, revealing what appears to be a pair of large, blue-black "eyes" and a double row of white teeth-like markings (see Fig); a most remarkable effect which would be sufficient to startle any potential avian, reptilian or mammalian predator.


Larva of Fruit Piercing Moth – Photo by John Moss

As well as the spectacular appearance of the adult and larva, the pupa is also similarly endowed, exhibiting what resembles transparent circumferential panels on every abdominal segment. It is difficult to imagine what function this serves, considering the larva encloses itself in a thin silken cocoon, woven loosely into dead leaves on the ground. My specimen made its cocoon amongst the live green leaves of the host plant within a container. Further observations are needed to confirm the normal (natural) pupation site(s).

Recently, Bob Miller and the writer found colonies of these moths in rainforest areas near Maleny and Peachester where the larvae were feeding on the vine *Carronia multisepala* (see Plant Profile, this issue). Previously, Don Sands had reported this species on *Carronia* from the Mary Cairncross Park at Maleny in the Blackall Ranges (Ref).

Common (Ref 1) reports the larvae feed on *Pycnarrhena australiana* in North Queensland. Both this and *Carronia* are in the family Menispermaceae, members of which are the host plants of most species of fruit-piercing moths.

The larvae certainly make interesting and entertaining pets, but soon lose their wariness such that they refuse to exhibit their showy startle reflex.

Refs.: 1. Common, Ian : 1990 Moths of Australia. Melb. Uni. Press

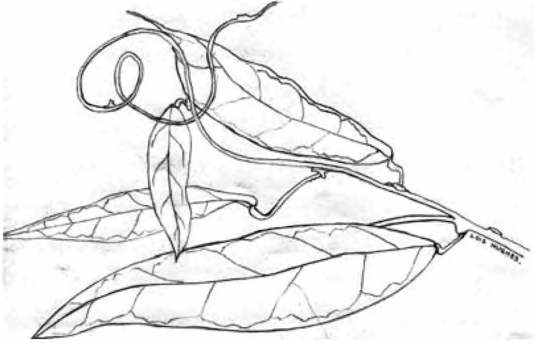
2. Sands, DPA: Conservation Status of Lepidoptera: pp388-93 assessment, threatening processes and recovery action. In Ponder W and Lunney D, 1999 : *The Other 99%. The Conservation and Biodiversity of Invertebrates Transactions of the Royal Zoological Society of NSW.*

PS Recently I saw in a colleague's collection a specimen of a related *Phyllodes*, presumably from the Pacific or South-east Asia region but unfortunately without label data to indicate person, place and date of capture. This was a similar size and had the pinkish-red central hindwing areas replaced by a marginal orange patch but was equally as magnificent a creature.

John Moss

PLANT PROFILE

Carronia multisepala



This attractive vine is the host plant of several fruit-piercing moths in southeast Queensland and northeast NSW, including *Phyllodes imperialis* (see Creature Feature – this issue) and *Eudocima (Othreis) fullonia.* Jones and Gray (Refs 1&2)) describe it as a "tall glabrous dioecious climber" (which occurs in) rainforests of Qld. and northern NSW". Being "dioecious", it has separate male and female flowers. These both have small petals, but the males have red stamens and fluffy cream anthers, whilst the females are duller and less obvious. The specific name comes from the flowers' numerous overlapping sepals.

The young lanceolate (sword or arrow-tip shape) leaves are pale green and thin textured, but the more mature are oblong in shape, firm to tough, shining dark green above, paler below and with prominent pinnate veins. Older leaves are somewhat cordate (heart-shaped) at the base with the apex of the petiole (leaf stalk) having a pulvinus (distinctive swelling) and in many respects resembling the Richmond Birdwing Vines (*Pararistolochia praevenosa* and especially *P. laheyana*) which also have simple alternate leaves and grow in the same rainforest habitats.

There are some useful illustrations of the leaves in Williams and Harden (Ref 3) where a comparison can be made with the *Pararistolochias*, however Lois Hughes' fine illustration clearly shows the main features of the *Carronia*.

Although *Carronia* flowers in September to November I have not had the pleasure of observing it (most flowerings would take place in the treetop canopy). There are some magnificent specimens at Peachester, in the Mary Cairncross Park at Maleny and further west in the Conondale Ranges. The vine grows reasonably well in cultivation (although I managed to kill mine!) but our club's President and Secretary have two or three healthy specimens in their West End garden.

I have heard that the vine will strike from cuttings, although mine done with haste and without hormone powder, were not successful. Certainly more work needs to be done with this interesting plant with respect to the various methods of propagation.

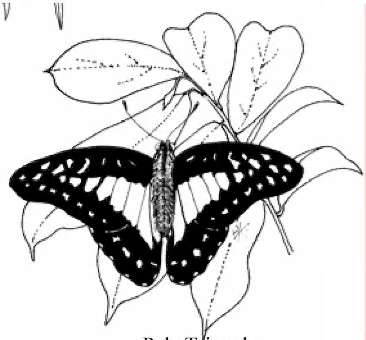
Refs.: 1. D.L. Jones and B. Gray: 1977 Australian Climbing Plants. Reed Books
2. D.L. Jones and B. Gray: 1991 Climbing Plants in Australia. Reed Books
3. Williams J.B. and Harden G.J. 1988 Rainforest Climbing Plants. University of New England, Armidale, NSW.

John Moss

REPORTS

Turner's Nursery Display 9th and 10th February

An extremely hot and humid day on Saturday kept the people away but brought the butterflies out to delight and enthral us. Crowds of people visited Rod Pattison's rainforest garden, where the shady cool conditions provided respite from the heat, but not many ventured up the street to Turners where Daphne, John Moss, myself and husband John set up our interesting and informative display beneath a marquee erected in the delightful garden surrounded by butterfly host and nectar plants.



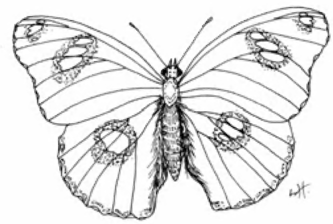
Pale Triangle

The highlight would have to be the custard coloured Pale Triangle female who spent the day egg laying on the huge Custard Apple tree and then flying down for a drink at the sweetly perfumed flowers of the potted Curry trees. She certainly knew the secret of ‘spicing’ up her life!! A Dainty Swallowtail female kept John Moss busy as she laid eggs on the new tips of the dozens of potted Citrus plants, which he then collected for Daphne to hand raise and release. Larvae of the Lemon Migrant were found on the Pink Cassia.

Caroline Collins, the Nursery Proprietor, assures us that the nursery seldom uses sprays to control pests in the Nursery but relies on the resident water dragons to keep plants clean, which is welcome news to our club members and we congratulate them on this policy.

It was interesting to note which nectar plants the various butterflies used. A glorious black and white Orchard Swallowtail was a picture as it drank from the deep red blooms of Ixora with that characteristic fluttering of its upper wings, while the lower wings are held stationary. *Abelia* also attracted the Lemon Migrant and a purple, perfumed *Duranta* had numerous butterflies feeding from it.

Zebra Blues were also busy around the *Plumbago* and a pair of Common Eggflies also visited as well as the Common Crow. John M. discovered a couple of plants which he purchased which may prove to be suitable host plants. One was a purple leafed *Barleria* with a cute lavender flower which may be listed as a Tiny Grass Blue host. These butterflies are breeding again on my *Barleria.* A purple leafed *Pseuderanthemum* with a quite bushy habit of growth will also be investigated as an Australian Leafwing host.



Common Eggfly

One charming English gentleman returned to our display 3 times trying to identify the various butterflies he was seeing in the garden from the Domino poster. He eventually joined up! I think the deciding factor was the striking caterpillars we had on display. Daphne had Pale Triangles in each of their three totally different coloured instars, from velvety black juveniles to tan and then blue-green mature larvae. The highlight for John Moss was the emergence of his carefully tended and magnificent Regent Skipper from its equally colourful pupa, ensconced between the leaves of a potted *Wilkea*, which he quickly photographed.

I had discovered two large dramatically marked black caterpillars that morning on the balsam. They have now pupated so it will be interesting to see which hawk moth emerges. Along with a large number of Orchard and Dainty Swallowtails in all their colourful instars and their accompanying pupae as well as a Fuscous Swallowtail pupa, we had plenty to interest and delight. We met many interesting and interested people. Our small booklets are proving popular for those just starting out. In all it was an enjoyable and rewarding day.

On the Sunday, during their shift at our display, Helen and Frank also discovered an interesting Bee Hawk Moth larva on a Gardenia and are eagerly awaiting its emergence so it can be identified.

Lois Hughes

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A note on two recent light traps in the Maleny - Peachester Region.

Ultra violet light trapping is perhaps the most enjoyable and least strenuous method of observing and collecting winged nocturnal insects. As anyone who has attended a light trap will attest, it is extremely exciting and addictive, with little excuse needed to set one up on weekends. So, with a chance to see and collect the Giant or Imperial Fruit Piercing Moth (*Phyllodes imperialis*) on the Blackall Range and an UQ insect collection assignment requiring attention, the author, John & Ronald Moss and Bob & David Miller ran light traps at two locations in the Maleny - Peachester regions.

The first light trap was set up at Gardners' Falls, a recreation park adjacent to largely untouched rainforest bordering the upper reaches of the Obi Obi River, which drains into Baroon Pocket Dam and eventually Kondalilla Falls. This region contains many poorly conserved species, including the Richmond Birdwing (*Ornithoptera richmondia*) and the aforementioned Fruit Piercing Moth (*P. imperialis*). The latter species has very rarely been collected as adults, with most specimens in collections originating from larvae, with wild-caught specimens required for study.

Within minutes of setting up the light and firing the generator, insects began to arrive in reasonable quantities. I secured the first specimen for the night – an attractive Mayfly (Order Ephemeroptera, pronounced E-fem-er-op-tera). The Mayflies are a relatively obscure group of insects with large, net-like forewings and almost vestigal hindwings and 3 elongate, filamentous appendages or cerci arising from the end of the abdomen. The adults do not feed, all energy used by the adult assimilated instead by the predatory, aquatic larvae. In fact, the alimentary canal is air filled and used to enhance the aerodynamic properties of the insect! Mayflies are inferred to be one of the most primitive groups of insects, with fossils dating back to the Triassic-Jurassic period (ca. 225-114 million years ago) and, when grouped with the Dragonflies, comprise the 'primitive' grouping Palaeoptera (Pal-ae-op-tera).

Other insects began to arrive in large numbers, especially small Pyralid moths, of which John Moss & Bob Miller secured some very stunning specimens. We were also graced by some beautiful and very large Sphingid or Hawk Moths (Fam. Sphingidae), including *Theretra nessus*, which possesses unique golden abdominal markings and *Acosmeryx anceus*, with brilliant green-brown tones. Some brown Hepialid or Swift moths (*Aenetus* sp.) also arrived, a most unexpected discovery.

Of particular note at this light trap was the unusual abundance of the insect order Megaloptera or the Alderflies. Both families (Corydalidae & Sialidae) of this uncommonly encountered group arrived, with some 20 Corydalids and a smaller number of the even less frequently encountered (at least in Queensland, A.G. Orr pers. comm.) family Sialids observed throughout the duration of the light trap. Several specimens of each family were collected and preserved in 80% ethanol by the author. Also encountered here were numerous Trichoptera (Trike-op-tera) or Caddisflies, some of which were almost, if not more, colorful than many moths arriving alongside them! Caddisflies are closely related to the Lepidoptera (Lep-e-dop-tera; butterflies and moths), also possessing scaled wing and body surfaces. The larvae of this group are aquatic, feeding on plant matter and detritus.

Alderflies and Caddisflies are important ‘ecological indicators’; their aquatic larvae occurring mainly in streams of pristine condition. The large numbers of these insects suggests Gardners’ Falls is in relatively good condition.

The insect numbers soon dwindled with the cooling climate, as did any expectations for the arrival of the Fruit Piercing Moth we were all anxious to observe. So, at 10:30, the light trap was concluded and we left, satisfied with a good night’s trapping and observations.

The second night of light trapping was at Bob Millers’ re-vegetation site 1 km west of Peachester. This area is comprised of disturbed lowland riparian rainforest, whilst Gardners’ Falls is (relatively) undisturbed highland riparian rainforest. Subsequently, the Peachester site is the habitat of an entirely different suite of insects than are encountered at Gardners’ Falls.

In terms of diurnal Lepidoptera, this area is inhabited by Richmond Birdwings, Leafwings (*Dolleschallia bisaltide australis*), Common Aeroplanes (*Phaedyma shepherdi*) and the Australian Rustic (*Cupha prosope*), with observations taken at this site by Bob Miller and published in Issue 22, September 2001 of this newsletter. Insect activity was initially slow, probably due to the fact that the trap was not started until 19:20 hours. Nocturnal insect activity typically occurs in waves, with peaks in activity occurring at dusk, then later (approximately 22:00-24:00) and again in the early morning (I.F.B. Common, pers. comm.). Therefore, a full night of trapping is undoubtedly the best way to sample insect diversity (S. Cameron, pers. comm.). The first find of the night was a solitary Fruit Piercing Moth (*Eudocima* [*Othreis*] *fullonia*), which John captured and placed under the care of the author, followed by several stunningly beautiful rainforest moths of the families Pyralidae (Leaf Rollers), Geometridae (Loopers) and Noctuidae (Noctuid moths). A solitary representative of the same Hepialid moth (*Aenetus* sp.) encountered at Gardeners’ Falls also arrived but was left to its own devices. Several Anthelids (*Anthela excellens*) were also observed, along with several very common and freshly emerged Magpie Moths (*Nyctemera amica*).

Non-Lepidopteran life of particular interest was in the form of two Mantid Lacewings, members of the peculiar Lacewing (order Neuroptera; say it New-rop-tera) family Mantispidae (Man-tis-pid-i). These lacewings, as their name suggests, posses the raptorial forelimbs normally found in the Praying Mantids (order Mantodea; Man-toe-dea).

Also present were a large number of Caddisflies, with many more species found here than at Gardners' Falls. Other groups of note were the numerous leafhoppers (order Hemiptera; Hem-ip-tera) and small true flies (order Diptera; Dip-tera), along with a single Sialid Alderfly, which was dutifully collected for later identification. However, by 21:30, insect activity had again decreased and patience was again waning with the weather, so the light trap was switched off.

Light trapping is as enjoyable and addictive as it is scientific and is an excellent way to spend a Saturday night. It is through this method that one can gain an appreciation of the wonderful diversity of insects to be found in any habitat without having to conduct a dedicated search. It is hoped that activities like these will become more common, hopefully providing a greater understanding and subsequently appreciation for the diversity of nocturnal insects to be found within the south-east Queensland region.

Acknowledgments: Dr. John Moss, Mr. Bob Miller and Mr. David Miller are thanked for agreeing to accompany the author on this trapping session and to Dr. Moss for use of his equipment. Dr. Donald Sands and Dr. Albert Orr are thanked for helpful discussions on the occurrence of the Fruit Piercing moth at light traps in the south - east Queensland region. Dr. Orr is also thanked for confirming the identity of the Sialid (Megaloptera) specimens. I am also grateful to Dr. Ian Common for discussions on light trapping in general, and also on temporal variations in moth diversity. Thanks are also due to Mr. Leslie Ring for discussions on the occurrence of *Phyllodes imperialis* and other species of this genus at light traps in north Queensland and peninsular Malaysia. Last but certainly not least, Mr. Paul Nielsen is thanked for collecting the author at the completion of both light trap sessions.

John Neilsen

EXCURSION REPORTS

Bayside Mistletoe Excursion – 10.2.2002

The excursion got off to a good start at Bowman Park, Lota, with the early birds finding some trees with mistletoes right next to where the cars had been parked. There were trees of *Casuarina glauca* and these had mistletoes of *Amyema cambagei* growing on them. The leaves of this mistletoe are needle like and quite similar to their host tree. The red flowers were the giveaway in confirming that these were mistletoes and not *Casuarina* in bloom.

The similarity of some mistletoes to their host plants is probably not a coincidence. Many butterflies identify their host plant by landing on it and tasting it with their feet. Once they have found the first plant some butterflies are able to memorise it so that they only check those plants that look like the first one. For instance, the Cabbage White is able to memorise the colour of the first plant it comes across that contains the chemical sinigrin, a chemical common to cabbages and some related plants. An article on the back page of Ecos no.36 (winter 1983) makes interesting reading on this subject.

The characteristic munchings of Azure caterpillars were noticeable on some of the leaves. No caterpillars were found though this was to be expected. They usually feed at night and hide in borer holes or under pieces of bark during the day. They are also attended by ants and some *Crematogaster* ants were visible on the tree. Ants of this genus are one type of ant known to tend Azure caterpillars and it was useful to note the characteristic pointed tip to the abdomen of these ants for future identification.

Another mistletoe was growing on some of the first mistletoes. They were plants of the Golden Mistletoe (*Notothixos subaureus*). Some mistletoes are usually only found growing on other mistletoes. This one has a very characteristic golden dusting on the underside of its leaves which makes it easy to identify.

Many people had brought a booklet written by Gillian Scott on identifying SEQ mistletoes. One person had even brought some samples of their local mistletoes for identification. I had brought a small piece of the mistletoe *Amyema conspicuum* complete with a few berries. This was not a mistletoe I had expected to come across during the excursion. I had brought it along to demonstrate how to plant the seeds on a suitable host for those who were interested in emulating Murdoch De Baar's system for maintaining a colony of Azure butterflies on this mistletoe. (see BOIC newsletter no.19 , December 2000 pages 4-5) Unfortunately successful germination of this mistletoe usually requires a large number of berries to ensure at least a few successful plants.

We then proceeded to the main attraction of the park which was a large tree of *Albizia lebbeck*. This was covered with large numbers of two species of mistletoe. The most abundant was the Apostle mistletoe *Dendrophthoe vitellina*. It has fleshy grey-green leaves and attractive orange flowers followed by red berries. This mistletoe is one of a group which is able to send out runners along the branches and start new plants in different places. There is some variation in the shape of the leaves and I brought along some leaves of the same species from a different location to give people some idea of the difference.

While we were there we could hear the sounds of the Brown Honeyeater *Lichmera indistincta*. A curious feature of the flowers of the Apostle mistletoe is that the flowers don't open unless they are tapped lightly on their ends. I often see the Noisy Minors *Manorina melanocephala* do this to the flowers of my Apostle mistletoe. This ensures that only birds get to pollinate the flowers. Perhaps this is to reward honeyeaters some of which also spread the seeds around as does the better known Mistletoe bird.

The other mistletoe (*Amyema congener*) was smaller and its flowers hung facing downwards unlike the upward facing flowers of the apostle mistletoe. The flowers of this mistletoe came in groups of three (triads) within larger groups of flowers. This feature of the number of flowers in a group is often useful in identifying a particular mistletoe.

Our next stop on Tingalpa Creek, at the eastern end of Molle Road, was to see a collection of less common mistletoes. Another *Casuarina glauca* had the familiar *Amyema cambagei* and the Golden Mistletoe (*Notothixos subaureus*). As well this tree had *Lysiana subfalcata* and *Viscum articulatum*. This *Viscum* is distinctive because the stems appear to be made up of many consecutive segments. The highlight of the excursion occurred here when someone spotted a female Satin Azure (*Ogyris amaryllis*) flying around the *Amyema cambagei* and subsequently landing to find a place to lay her eggs. The red spot on the underside of her wings, which blends in quite well with the red berries of the mistletoe, was easily visible. A few metres away a bottlebrush tree *Callistemon* sp. had a further two species, *Diplatia furcata* and *Notothixos incana*. This particular site was found in 1997 by John Moss and written up in QNC News no 217 page 8. The trees seemed to be a bit less robust than I remembered from that earlier (1997) excursion but this is still a most interesting spot.

Our final stop was John Fredericks' Park on Tingalpa Creek where it crossed Old Cleveland Road. The large gum trees in the park were host to many mistletoes of the type that have pendant leaves. There are several different species that have this habit and it is necessary to examine the flowers to confirm an identification. These particular mistletoes were too high up to do this easily but one enterprising person managed to put me on the spot by finding some fallen flowers. These mistletoes turned out to be *Amyema miquelii*.

One of the large trees here had died and it had been a host to several mistletoes. Most people would immediately assume that the mistletoes had killed this tree though in this case it was unlikely since all the other trees with mistletoes were still doing well. This tree was an isolated tree away from the others and this isolation probably was implicated in the death of the tree. This isolation is a factor in the well-known dieback disease.

Nevertheless it would be useful if some studies could be done of isolated trees with excessive mistletoes. They could be connected by ropes to the other trees to see if the grazing of possums had an effect on the mistletoes. The areas around the base of the trees could be modified to make them more attractive to sugar ants *Camponotus* sp which are known to tend caterpillars of Azure butterflies whose caterpillars feed on mistletoes. These caterpillars could be introduced and the results noted.

Since the weather was starting to get even warmer it was decided to end the excursion here. We had seen many different types of mistletoe and I had discovered that there were many people with quite a serious interest in mistletoes. ***Frank Jordan***

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Visit to Lois and John Hughes' Property – 20.3.02

Overnight rain cleared to a windy day but it didn't deter club members. Eighteen of us had a thoroughly enjoyable afternoon. Only a few of the usually large numbers of butterflies were seen, but those that did put in an appearance were greatly admired. A pair of Orchard Swallowtails performed their mating dance around the *Zieria smithii,* which carried a number of caterpillars at varying stages, remarkably well camouflaged, on the flowering bush. As we surveyed the stinging nettle and photographers captured a final instar larvae, a female Yellow Admiral obligingly arrived to deposit her eggs, unperturbed by onlookers. A Macleay's Swallowtail briefly visited the lantana flowers before spiraling up into the tree tops. Numerous Common Moonbeam butterflies were seen in the vicinity of the Sandpaper Figs but no larvae nor pupae were found even after a determined search.

Macleay's Swallowtail

Two Dainty Swallowtails and a male Orchard emerged that morning from hand raised larvae and were admired and released. Wanderer butterflies and caterpillars were found on the Cotton Bushes.

On walking around the property we observed the many indigenous host plants flourishing mainly around the creek banks plus the introduced host and nectar plants, all of which we hope will eventually make our property a butterfly haven.

Our show and tell session before the walk had us enthralled at the dramatically patterned specimens of fruit-piercing moth larva and pupa of *Phyllodes imperialis* that John Moss produced.

Common Moonbeam on Sandpaper Fig

Our day ended with a wonderful afternoon tea by the creek where we had lively and interesting discussions. ***Lois Hughes***

Footnote: 6th May. Stinging nettle defoliated with about 40 pupae, many larvae preparing to pupate and many hungry larvae transferred to other locations.

13th May. One hundred pupae counted. Interestingly most pupae were light coloured with silver markings, probably only 6 or 7 were brownish with gold markings. Some butterflies already emerged. It is worthwhile to grow nettles. I may be able to supply seed. A similar population explosion occurred in 1996. See Newsletter Issue No. 5, March 1997, for a more detailed report.

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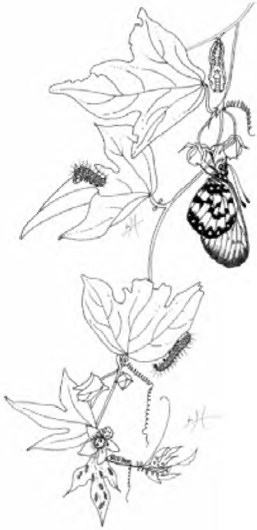
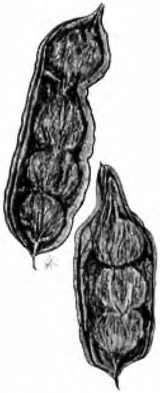
Visit to Jak Guyomar's property – 23.04.02



Glasswing life cycle

A delightful sunny day heralded what was to be a most interesting visit to Jak and Ginny's property. It was like stepping out into an enchanted forest after emerging from Aladdin's cave. Through towering trees and heavy under-story bushes and ground covers, the vines snaked their way through the vegetation, all weaving their particular magic. A native passion vine was carrying Glasswing larvae and the *Mucuna gigantea* vine (the host of the Green Awl) yielded many of the large interesting pods which give it its common name of Matchbox Bean. The Zig-Zag Vine draped itself over a Custard Apple and through a clump of *Euodias* and other shrubbery. Around another bend a Tagala Vine with enormous leaves drew many comments. *Alphitonia* abounded and we saw a Small Green-banded Blue around one of the trees. Monkey Rope snaked its way up many tree trunks and quite a few Common Crow butterflies were in evidence. Another bend revealed a waterhole upon which blue waterlillies bloomed and Karamat grew in abundance, host of Tiny Grass Blues, Chocolate Soldiers and Blue Argus. *Gahnias* (Sawsedge) flourished around the edges.



Mucuna gigantea seed pods

These were only a few of the delights encountered on our tour punctuated by Jak's lively and informative commentary. We then wandered back to Aladdin's Cave to view the extensive butterfly collection. The Birdwings were spectacular. Cory was so overcome his hands shook as he unfolded brilliantly coloured specimens he'd only ever dreamed of seeing. Jak's overseas visits and connections yielded many treasures.

We then meandered our way to the refreshments which we enjoyed amid the vast collections of treasures of bye-gone days, the vintage cars (including Jak's father's old Rover) being the jewels of the collection. We saw gorgeous Blue Triangle photos taken by Gosia in John Moss' kitchen, that she had enlarged and framed, a very talented photographer. Many photos were passed around from previous excursions, plants and seeds were swapped and Jak kindly allowed us to take cuttings and seeds of various plants. Gracious and welcoming hosts indeed, we thank you Jak and Ginny.

Our decision to visit people's gardens has proved very popular. It has allowed us to learn much more about host plants, to meet new Club members, swap plants and advise and share our collective wisdom and to socialize in a relaxed atmosphere. If you have an interesting garden and would like us to visit we would love to come. Please contact us.

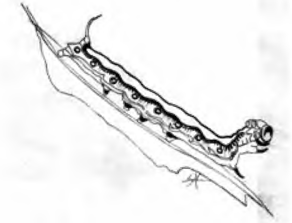
Lois Hughes

ARTICLES OF INTEREST

Cephonodes Summer

The summer of 2001-2002 has been an exceptionally good one for the Gardenia Bee Hawk (*Cephonodes kingii*) around Sydney. They have turned up at Belrose, Glenmore Park, Glossodia, Mosman, Mt. Annan, Terry Hills, Wattle Grove, and West Pennant Hills either as caterpillars or adult moths.

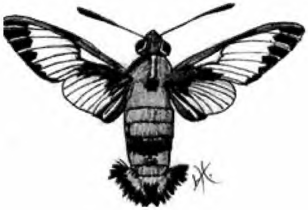
As its common name implies, in urban areas this species lays on *Gardenia* spp., in particular *Gardenia augusta* varieties which grow to around a meter in height with compact leaves - although this year they have been also common on Gardenias grown as standards. Larvae of this species have also been recorded on *Citrus limon* (exotic Lemon tree), and *Medicago sativa* (Alfalfa or Lucerne). Their native foodplants are recorded as various *Canthium* species, *Gardenia ovularis* (Native Gardenia), *Larsenaikia ochreata* (Scented Gardenia Bush), *Pavetta australiensis*, and a *Tarenna* sp. (Native Tarenna) (Moulds 1984, 1998).



Cephonodes larva (light form)

The caterpillars have the typical sphingid spine at the tail end and come in two colour forms. One is mainly black with prominent red-rimmed white spiracles, the other is mainly green with the same red-rimmed white spiracles and a grey back (Herbison-Evans, D. & Crossley,S. 2001). Our sphingid expert at the Australian Museum says the colour forms do not indicate the future moth's sex but are genetically determined and that green seems to be the more common form in the wild (Max Moulds pers comm.). Both forms of larvae have tubercles just behind the usually yellow head on the prothorax. When threatened the caterpillars arch back and may regurgitate a green fluid.

The green and yellow adults are day-flying and provide a great display by hovering like a large bee or humming bird in front of suitable flowers while feeding, or zooming around the food plants looking for suitable egg laying sites (under the leaves on the growing tips). The name 'bee-hawk' relates to their bee-like clear wings (the 'hawk' part referring to them being hawk moths in the family Sphingidae, subfamily Macroglossinae). Their appearance, feeding behaviour, and humming wing beats has also at times led to their being described to the museums enquiry section (Search & Discover) as hummingbird-like moths, cicada-winged moths, and giant wasps!


Cephonodes kingii

The adults like flowers with deep nectar sources like Impatiens, Buddleia, Plumbago, and Verbena but will also feed on daisy like flowers on occasion. A recent DPI study (Morrisen et al, 2002) has revealed that Sphingids, including *Cephonodes*, are important pollinators of Papaya (*Carica papaya*) so planting some of these might benefit the *Cephonodes* too.

The colourful caterpillars are easy to raise in captivity, but don't overcrowd as they will eat one another. The resultant pupae take about 3weeks to develop and the moths emerge. The moths hatch out with scaled wings but the scales are lost when they fly - a 'moth releasing' soon after their wings have dried is recommended before they damage themselves in trying to escape. They make a great caterpillar pet-project for kids!

All in all Sydney has certainly benefited, in my opinion, from the influx of Gardenia Bee Hawks this summer and I hope they remain as long term residents. With a bit of selective planting you can have these great looking and very entertaining moths in your garden too.

References.

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http://www-staff.mcs.uts.edu.au/~don/larvae/sphi/sphingidae.html
Morrisen,A., Astridge, D., Hanson, V., & Elder, R. (2002)
http://www.dpi.qld.gov.au/horticulture/5330.html
Moulds, M.1984, Larval food plants of hawk moths (Lepidoptera: Sphingidae) affecting garden ornamentals in Australia. General and Applied Entomology 16: 57-64
Moulds, M. 1998, New larval food plants for Australian hawk moths (Lepidoptera: Sphingidae). Australian Entomologist 25(1): 13-22. records of Search & Discover, Australian Museum, 2001-2002

Martyn Robinson, Communication Naturalist, Science Communication, Australian Museum, 6 College St, Sydney NSW 2010

Ed. Note: Martyn included the following note with his article – "We are still interested in other food plant records for this and other known sphingid species so if anyone has some to contribute (preferably with specimen) the museum will be grateful....(eg. I seem to recall a reference to this species being found on coffee plants but I now can't locate it so I can't include it...). **If you have any information to impart please contact Martyn at the above address.**

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The following information was received from David Sleep of Wellington Point

This year has also been a very good year for *Cephonodes kingii* in Victoria Point. At one count in a Supermarket car park I counted 155 larvae and 47 eggs on Dwarf Gardenia, but I have not found this species on any other food plant.

Another very prolific species this year was *Psilogramma menephron* (Australian Privet Hawk). I have found it feeding on *Pandorea pandorana*, *Tecoma* sp. , *Morinda jasminoides*, China Doll, *Cissus* Ellen Danica, Jasmine Vine and a small tree/shrub with dark green leaves and purple stems, in Woodgate just south of Bundaberg.

This year I have also bred *Hippotion boerhaviae* on *Pentas lanceolata*
Macroglossum hirundo on *Morinda jasminoides*
Cizara ardenia on *Morinda jasminoides*
Theretra oldenlandiae on *Impatiens balsamina* and *Vitis vinifera* (Grape Vine)
Theretra letreillei on *Impatiens balsamina*, *Cissus opaca* and Coffee Weed

and have reared four other undetermined species but still waiting for the pupae to hatch

Species found as moths only this year –
Theretra inornata
Agrius convolvuli (pale form)
Tetrachloa edwardsi

There are a few plants that I would like to find, if they are in this area
Stinkwood – *Gyrocarpus americanois*
Fever (Bitter) Bark - *Alstonia constricta*

David Sleep

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Old and new host plant records.

The native mulberry, *Pipturis argenteus* (Urticaceae), is now confirmed as a new host plant record for the Yellow Admiral, *Vanessa itea* (Nymphalidae). Additionally, an observation I made many years ago, and assumed was recorded elsewhere, was of an Orchard Swallowtail, *Papilio aegeus* (Papilionidae), caterpillar feeding on an introduced camphor laurel, *Cinnamomum camphora* (Lauraceae).

During March and May 2002 in the western suburbs of Brisbane, I observed at least two individual female Yellow Admirals (based on size and wing wear patterns) laying eggs on three native mulberry trees over a two week period. Eggs were laid on leaves of varying maturity and all over the trees which ranged approximately 1.5m to 4m in height. The same individual Admirals would remain in the vicinity of the native mulberries over the two week period and seemed to spend all of their time ovipositing when on the wing. Twelve eggs were collected and bred through on *Pipturis* leaves producing a single, morphologically normal adult male which was subsequently released. Most larvae died almost simultaneously and at varying sizes, suggesting pathogen-induced mortality rather than food plant incompatibility.

Australian Admiral – sketch by Graham McDonald

This new record adds to the other butterfly species known to utilise the butterfly-friendly native mulberry, including the Jezebel Nymph, *Mynes geoffroyi* (Nymphalidae), and the Speckled Line-blue, *Catapyrops florinda* (Lycaenidae).

Orchard Butterfly

About 20 years ago, I observed a single, final instar Orchard Swallowtail larva perched on a leaf of the introduced camphor laurel tree over-hanging Cubberla Creek at Kenmore, in the west of Brisbane. The specimen was out of reach on a young sapling and was unable to be collected. There were no other known Orchard Swallowtail host plants close by in this camphor laurel dominated patch of creek vegetation. I have not observed Orchard Swallowtail ovipositing or their larvae feeding on camphor laurel since.

James Beale

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The Misunderstood Mistletoe – friend or foe? By Murdoch De Baar

– Produced from “Between the Leaves” (Winter 1993 ed.) by permission of the Queensland Forestry Research Institute, Department of Primary Industries, Queensland.

(The name mistletoe conjures up images of leaves pinned up over doorways to give people an excuse for a quick kiss, or the traditions of Christmas. Now some Australian scientists suggest mistletoes are killing our trees and should be destroyed. Murdoch De Baar, Curator of the DPI Forest Service insect collection and a senior forest entomology technician, argues that the much-maligned mistletoe should be placed in its total ecological context.)

Mistletoes are semi-parasitic plants. They undertake photosynthesis to produce organic matter, but derive water and mineral nutrients from their host. Australian mistletoes belong to the families *Loranthaceae* and *Viscaceae.*

There are 85 species of Australian mistletoe mainly in the *Loranthaceae* which includes 950 species worldwide (14 of those 85 are in *Viscaceae* making a combined total of 1350 species). Some of the *Viscaceae* also obtain photosynthetic products from their host.

The related family *Santalaceae* contains root parasites such as Native Cherry *Exocarpus spp*., Sandalwood *Santalum spp*. and Sourbrush *Choretrum spp*. but two root parasites *Nuytsia* and *Atkinsonia* are represented in the *Loranthaceae*.

Most tropical mistletoes are pollinated by birds. Fruit-eating birds distribute the seeds in their droppings or by wiping their beaks. When the seeds germinate a modified root penetrates the bark of the host and forms a connection through which water and nutrients pass from the host to the mistletoe.

Mistletoes are mainly spread by the Mistletoe bird. The red flash of Mistletoe birds is a pleasure to have in the garden, although they are sometimes not recognized as they are easily confused with the scarlet honeyeater. Mistletoe birds and many others including silvereyes, orioles, honeyeaters, wattlebirds and some parrots eat mistletoe fruit or feed from the flowers. Fluffy gliders supplement their diet with clumps of mistletoe flowers which can be rich in nectar, and possums also feed on the fruit and flowers. The inquisitive and omnivorous brushtail possum, widespread in Australia, will accept mistletoe and it has been suggested that this possum contributes a major restraint on mistletoe growth.

Some experts believe that mistletoes are responsible for tree decline and death and therefore should be exterminated. But since mistletoes are native to Australia why should they have become a problem now?

The most likely reason for mistletoe becoming a threat to trees is human mismanagement of the environment – activities which have interfered with the natural ecological balance, like excessive tree clearing.

Mistletoes can menace trees, but so can koalas. If you have too many koalas for the number of feed trees in the area the koalas can stress trees by stripping their leaves. However, solutions for this tree over-use would not normally include destroying the koalas. Mistletoes, like koalas, are normally not a problem and are an important part of our environment.

There are about 25 species of butterflies which feed on mistletoes during the larval or caterpillar stage. The genus *Delias* often known as “Jezebels” or “Union Jacks” need to eat mistletoes and are represented by 150 species in the Indo-Australian region, 80 species in Papua New Guinea and eight species in Australia. Their wings often span from 40 to 80 millimetres or more, and are regularly adorned with red and yellow splashes. The larvae of the imperial white *Delias harpalyce* feed gregariously, and as many as 60 pupae may occur in a communal web. Adults of several *Delias* butterflies can be seen in flight during cloudy days and even in the winter months, thus providing a continual butterfly landscape.

In southern Queensland at least 30 species of butterflies and moths fed on mistletoe, of which about half are moths including two large Emperor moths *Opodiphthera loranthi* and *O. engaea* the Mistletoe dayflying moth *Comocrus behri* the Mistletoe stemborer *Xylorycta heliomacula* and the Mistletoe browntail moth *Euproctis edwardsi*.

Small to medium-sized butterflies commonly called "azures" include 12 Australian species in the basically Australian genus *Ogyris*. Ten of these are obligatory mistletoe feeders and many also require the presence of specific ants. In these cases, butterflies and ants have co-evolved in the presence of mistletoes. The butterflies provide a variety of compounds (amino acids) secreted from glands on the larvae to the ants, and in return the ants provide protection to the larvae. Some azure larvae prefer to hide under bark pieces or in borer holes. The widespread mistletoe stem-boring weevil *Metyrus albicollis* provides excellent "hidey holes" for azure larvae, and the larvae of a few longicorn beetles, jewel beetles, pinhole borers and moths are known to bore into mistletoe stems also. Genoveva azure larvae and pupae are attended by Sugar ants *Camponotus spp.*. Larvae hide in the ant nest during the day, and at night in the company of ants bivouac sometimes up to a 40 metre return journey, to mistletoes high up in eucalypts.

Private research on an established population of the azure butterfly *Ogyris zosine*, has shown that larvae are able to completely defoliate several clumps of the mistletoe *Amyema conspicuum* in a four-month period. The larvae are also attended by sugar ants, in much the way royalty is attended by its entourage: looked after and protected.

Most mistletoes will only choose one or two genera of plants as their host. Some specialize on other mistletoes, such as the Golden Mistletoe *Notothixos subaureus*.

It could be possible to find a mistletoe on a mistletoe on another mistletoe on a santalaceae root parasite on a host. Consider the following: The mistletoe *Viscum articulatum* is a *Loranthaceous* and *Notothixos* parasite, but the mistletoe *Notothixos subaureus is* also a *Loranthaceous* parasite on such genera as *Amyema, Dendrophthoe* and *Muellerina*; however *Amyema miraculosum* may parasitise the root parasite *Santalatum lanceolatum* or even another *Amyema*!

Shire councils and landholders are sometimes faced with decisions whether to eradicate mistletoes over large areas, or not. Such destruction, however, could cause the loss of rarer mistletoes and specific mistletoe fauna.

Mistletoe, like anything in our environment, can tilt beyond equilibrium. Where some dieback has occurred, tree failure is seldom due to one single factor, rather the cause is often attributed to a combination of several factors.

Control of mistletoes should never be based on outdated or generalized information. Where mistletoes are seen as a threat, strategies should be carefully considered and researched, taking into account all factors that have contributed to this specific occurrence.

Murdoch de Baar **-**
Senior Forest Entomology Technician

POSTERS

The Club has recently obtained copies of 2 posters which had previously been unobtainable :

The Butterfly Alphabet Poster which shows all the letters of the alphabet and numerals 1-9 appearing in the wings of butterflies and moths. This poster can be viewed by visiting www.butterflyalphabet.com
Cost: Non-members $25 plus $5 postage Members $23 plus $5 postage

The Domino Poster - A guide for field, school or garden with 250 illustrations in colour
Cost: Non-members $10 plus $1 postage Members $8 plus $1 postage

Swallowtails of South East Queensland, compiled by the BOIC
Cost: Non-members $10 plus $5 postage Members $6 plus $5 postage

These posters can be obtained from BOIC, PO Box 2113, Runcorn, 4113.

WORLD WIDE WEB SITES TO WATCH

Visit the Club's website at http://cwpp.slq.qld.gov.au/butterfly

BACK ISSUES

Back Issues of the Club Magazine are available at a cost of $1 each plus postage (3-6 copies - $1.50. 1-2 copies $1.10)

ADS AND EXCHANGES

Sometimes you may have an oversupply of butterfly larvae and your food supply will not hold out. If this happens, contact Rob MacSloy - 07 3824 4348 - who operates the Register of Host Plants. He can put you in touch with prospective "foster parents'. Have **YOU** advised Rob of the host plants you have available?

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"The Laced Fritillary" a painting by Lois Hughes. Prints now available. 12 beautiful butterfly card designs also available now. Phone Lois on 3206 6229.

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See Garry Sankowsky's host plant offer in September Newsletter.

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In issue #20 we featured the Chequered Swallowtail and its hostplant *Cullen tenax*. Lois Hughes has quantities of *Cullen tenax* seeds available. Send a stamped addressed envelope to 163 West Mt. Cotton Road, Mt. Cotton, Qld. 4165.

OTHER GROUP'S ACTIVITIES

Photo Competition To raise awareness of the wonderful world of invertebrates, the Australian Museum is running a competition to find Australia's best photos of invertebrates. The competition is open to both amateur and professional photographers and has four different entry categories as well as an award for the most highly commended photo.

Send us your best photo and you could win one of four Kodak DX - 3500 (2.1 megapixels) digital cameras. Entries close Monday 1 July 2002.

For those of you on the internet visit http://www.austmus.gov.au/biodiversity/up_close.htm or contact the Australian Museum, Sydney for details

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SGAP Spring Flower Show:

The date for this year's Spring Flower Show is September 14th and 15th at the Mt. Gravatt Showgrounds on the corner of Logan Road and Broadwater Road, Mt. Gravatt

There will be spectacular displays of: native flora, landscaping ideas, displays from other organizations with similar aims, plants sales, cut flower sales, book sales, plant information and bush tucker displays. Admission is $3.00 - children free. Free parking in showgrounds on Saturday - $1.00 parking fee on Sunday.

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Redland IndigiScapes Expo

This years IndigiScapes Weekend Expo will be held on the weekend of Saturday 3rd and Sunday 4th August 2002 at 17 Runnymede Road, Capalaba – 10 am to 4 pm

The theme for this year's Expo is *"Nature's Creations"*. There will be native plant garden displays; propagation of natives; live animal displays; frog friendly gardens; displays by environmental groups; native plant retailers; food stalls; Art and Craft; various demonstrations and displays; musicians and guest speakers.

There will be an evening event from 6pm-8pm featuring a spot lighting, slide show, astronomer and musicians.

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Queensland Museum Workshop – Getting a buzz from Insects

Thursday 8th August : 1.00 pm to 4.30 pm
Saturday 10th August : 9.30 am to 1.00 pm
Phone the Museum for details

BUTTERFLY AND OTHER INVERTEBRATES CLUB PROGRAMME

Our winter program will consist of a series of slide evenings and show and tell

When: 1. Wednesday, **12th June**, 7.30 pm – featuring Butterflies and Moths
2. Wednesday, **10th July**, 7.30 pm – featuring Other Insects and a video
Where: Redlands Indigiscapes Centre, Runnymede Road (off Redland Bay Road), Capalaba
RSVP: John Moss phone 3245 2997 (or email bowden@itconnect.net.au)

Redlands IndigiScapes Expo - Saturday 3rd and Sunday 4th August
We will have a display at this event. See Other Group's Activities for details

Planning and Management Meeting – Wednesday 14th August
At Daphne's place. Phone Daphne on 3396 6334 or email bowden@itconnect.net.au for directions

SGAP Spring Flower Show –Saturday 14th and Sunday 15th September
We will have a display at this event. See Other Group's Activities for details

A visit to John Moss' property at Capalaba

When: Saturday, 28th September, 2002 at 1pm
Where: 30 Melaleuca Drive, Capalaba
What: 1.5 acres of butterfly friendly gardens and natural bushland backing on to the Melaleuca reserve
Tea and coffee provided
RSVP: John Moss phone 3245 2997 (or email bowden@itconnect.net.au)

Gold Coast residents wishing to attend Club activities, contact Carmon Burke 5577 1013 re car-pooling

If you plan to attend any of the above events please respond to the person indicated in case, for some unforeseen circumstance, the event has had to be postponed or cancelled.

DISCLAIMER

The Newsletter seeks to be as scientifically accurate as possible but the views, opinions and observations expressed are those of the authors. The Newsletter is merely a platform for people to express their views and are not necessarily those of the BOIC. If inaccuracies have inadvertently occurred and are brought to our attention we will seek to correct them in future editions. The Editor reserves the right to refuse to print any matter which is unsuitable, inappropriate or objectionable and to make nomenclature changes as appropriate.

ACKNOWLEDGMENTS

Producing this newsletter is done with to the efforts of:

- Those members who have sent in letters and articles
- Lois Hughes who provides illustrations including the cover
- Daphne Bowden who works on layout, production and distribution
- John Moss for scientific referencing and proof reading
- Helen Schwencke who developed the overall design
- Frank Jordan for inspiration

We would like to thank all these people for their contribution

ARE YOU A MEMBER

Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible.
Membership fees are $12.00 for Individuals/Schools and $17.00 for family membership.
Would you please advise bowden@itconnect.net.au if you get/change an email address.

Butterfly and Other Invertebrates Club Inc.
c/- PO Box 2113
RUNCORN Q. 4113

Next Meeting: A slide evening at the IndigiScapes Centre on Wednesday 12th June, 7.30pm, featuring butterflies and moths